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EXAMINER	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BERND BARTENBACH
and KAI RAINER EHRHARDT

Appeal 2009-005442
Application 10/806,232
Technology Center 1700

Decided: April 28, 2010

Before ADRIENE LEPIANE HANLON, CHUNG K. PAK, and TERRY J. OWENS, *Administrative Patent Judges*.

HANLON, *Administrative Patent Judge*.

DECISION ON APPEAL

A. STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134 from an Examiner's decision rejecting claims 1-18 and 20-24. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

Claims 1 and 3, reproduced below, are the only independent claims on appeal:

> 1. A process for the scale-up of a reactor having a supply of a reaction mixture via channels of a burner block to a reaction chamber, a high temperature reaction having a short residence time taking place in the reaction chamber and the reaction mixture subsequently being rapidly cooled in a quench area, characterized in that for a throughput enlargement the internal diameter of the reactor is enlarged, *the transition from the reaction chamber to the quench area being designed in the form of an annular gap* which is restricted to a width in the range from 2 to 200 mm.
>
> 3. A reactor having a supply of a reaction mixture via channels of a burner block to a reaction chamber, a high temperature reaction having a short residence time taking place in the reaction chamber and the reaction mixture subsequently being rapidly cooled in a quench area, *characterized in that the transition of the reaction chamber to the quench area is designed in the form of an annular gap.*

App. Br., Claims Appendix (emphasis added).[1]

The following Examiner's rejections are before us on appeal:

(1) Claims 1-13 and 20-22 are rejected under 35 U.S.C. § 102(b) as anticipated by Gravley.[2]

(2) Claim 23 is rejected under 35 U.S.C. § 103(a) as unpatentable over Gravley, either alone or in combination with Kuehner.[3]

(3) Claims 14-18 and 24 are rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Gravley and Bakker.[4]

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[1] Appeal Brief dated June 24, 2008.
[2] US 4,765,964 to Gravley et al. issued August 23, 1988.
[3] US 5,188,806 to Kuehner et al. issued February 23, 1993.
[4] US 3,640,739 to Bakker issued February 8, 1972.

B. ISSUE

Have the Appellants identified reversible error in the Examiner's finding that Gravley describes a reactor wherein the transition from the reaction chamber to the quench area is in the form of an annular gap?

C. PRINCIPLES OF LAW

"To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997).

D. ANALYSIS

The Examiner found that the "quench area" of Gravley can be found in the pyrolysis zone 8 and the combustion zone 4 of Gravley is a "reaction chamber."[5] Ans. 12.[6] The Examiner explains:

> [A]n "annular gap" (of at least 2 mm) would be found in the area of the downstream end of axial feedstock injector assembly (42) wherein the inner region of such gap would be formed by the distal end of the injector assembly (42) itself with the outer region of such gap being formed by the converging combustion chamber (32).

Ans. 12.

The Appellants argue that the distal end of the injector assembly 42 and the converging combustion chamber 32 are entirely within the mixing zone 6. Thus, the Appellants argue that the alleged "annular gap" is not the transition from a reaction chamber to a quench area. Reply Br. 4.[7]

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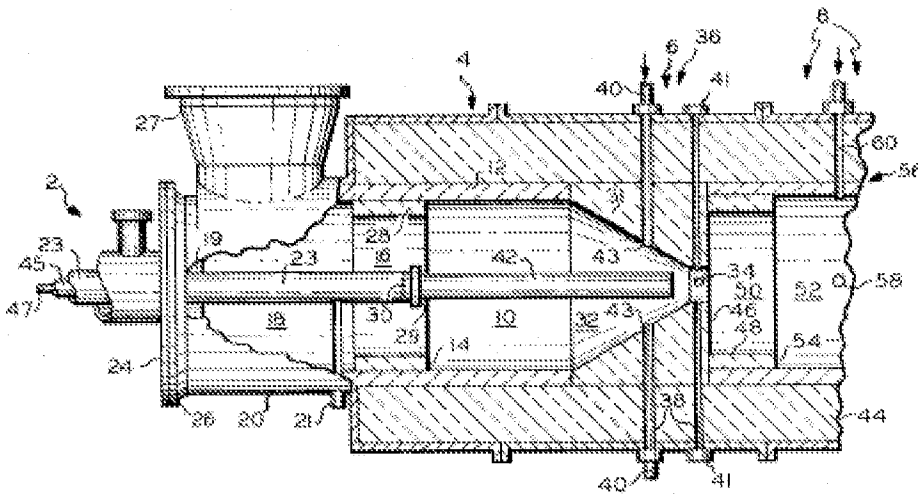
[5] According to the Examiner, two simultaneous reactions would be expected to occur in the combustion zone 4 – the combustion of combustible fluid introduced via passage 16 and the pyrolytic decomposition of liquid carbonaceous feedstock introduced via feedstock injectors 40. Ans. 12, n.1.
[6] Examiner's Answer dated August 14, 2008.
[7] Reply Brief dated October 14, 2008.

The sole Figure of Gravley, reproduced below, illustrates a reactor 2.



The Gravley Figure depicts a reactor.

The reactor 2 comprises a combustion zone 4, a mixing zone 6, and a pyrolysis zone 8. The mixing zone 6 comprises a sidewall 31 defining a chamber 32 converging from the combustion chamber 10 to a throat 34. Gravley 3:66-4:4. The pyrolysis zone 8 comprises a first cylindrical zone 50, a second cylindrical zone 52, and a means 56 for supplying cooling fluid to the reaction flow passage. Gravley 6:18-23, 37-43.

Based on this description in Gravley, we find that the converging chamber 32 is separated from the quench area 52, 56 by the throat 34 and the first cylindrical zone 50. Thus, we find that the "annular gap" relied on by the Examiner does not constitute a transition from the reaction chamber (i.e., combustion chamber 4) to the quench area 52, 56.

Furthermore, the Appellant contends that the only conceivable transition from a reaction chamber to a quench area in Gravley is within the pyrolysis zone 8. However, the Appellant argues, and we agree, that the transition from the first cylindrical zone 50 to the second cylindrical zone 52

is not in the form of an annular gap but rather has a cylindrical geometry. App. Br. 7.

The Examiner has failed to demonstrate that the teachings of Kuehner or Bakker cure the above-noted deficiencies of Gravley. Thus, for the reasons set forth above, we cannot sustain the § 102(b) rejection or the § 103(a) rejections on appeal.

E. DECISION

The decision of the Examiner is reversed.

REVERSED

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